

REMARKS

Applicants request favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 37, 38, 42, 43, 47, 48, 52, 53 and 57-63 are presented for consideration. Claims 37, 38, 43, 48 and 53 are independent. Claims 37, 38, 42, 43, 47, 48, 52, 53, 57 and 58 have been amended to clarify features of the subject invention. Support for these changes can be found in the original application, as filed. Therefore, no new matter has been added.

Applicants request favorable reconsideration and withdrawal of the objection and rejection set forth in the above-noted Office Action.

Claims 37-63 were objected to due to informalities. Specifically, the Examiner objected to the structural relationship between the detection section and the sensing apparatus or sensor, as recited in claims 37, 38, 48, 49 and 53. To expedite prosecution, Applicants have amended these claims in light of the Examiner's comments. Specifically, these claims now recite the term "electrode" instead of the term "detection section." Applicants submit that these changes clarify the structural relationship between the electrode and the sensing apparatus. Accordingly, Applicants submit that the Examiner's objection has been overcome. Such favorable indication is requested.

Turning now to the art rejection, claims 37, 38, 42, 43, 47, 48, 52, 53 and 57-63 were rejected 35 U.S.C. § 103(a) as being unpatentable over European patent document number 0 867 771 to Wakamoto et al. in view of U.S. Patent No. 5,683,547 to Azuma et al. Applicants submit that the cited art, whether taken individually or in combination, does not teach or suggest many

features of the present invention as previously recited in claims 37, 38, 42, 43, 47, 48, 52, 53 and 57-63. Therefore, these rejections are respectfully traversed. Nevertheless, Applicants submit that independent claims 37, 38, 43, 48 and 53, for example, as presented, amplify the distinctions between the present invention and the cited art.

In one aspect of the present invention, independent claim 37 recites an electrostatic sensing apparatus having an electrode for sensing a surface position of a shot region in a substrate to which a pattern is transferred by an exposure apparatus. The electrostatic sensing apparatus includes a plurality of the electrodes, and a system which selects at least one electrode from the plurality of electrodes, based on layout information of the shot region to be detected, and calculates the surface position based upon an output of the selected at least one electrode.

In another aspect of the present invention, independent claim 38 recites an exposure apparatus for transferring a pattern to a shot region in a substrate. The apparatus includes an electrostatic sensor, for sensing a surface position of the shot region, having a plurality of electrodes, and a system which selects at least one electrode from the plurality of electrodes, based on layout information of the shot region to be detected, and calculates the surface position based upon an output of the selected at least one electrode.

In a further aspect of the present invention, independent claim 43 recites an exposure apparatus for transferring a pattern to a shot region in a substrate. The apparatus includes a plurality of electrostatic sensors, for sensing a surface position of the shot region, each having a plurality of electrodes, and a system which selects at least one electrode from the plurality of electrodes of the plurality of electrostatic sensors, based on layout information of the shot region

to be detected, and calculates the surface position based upon an output of the selected at least one electrode.

In still another aspect of the present invention, independent claim 48 recites a scanning exposure apparatus for transferring a pattern of a mask to a shot region in a substrate by scanning the mask and the substrate relative to a slit-shaped exposure beam. The apparatus includes an electrostatic sensor, for sensing a surface position of the shot region, having a plurality of electrodes arranged in a direction perpendicular to a scanning direction of the mask and the substrate, and a system which selects at least one electrode from the plurality of electrodes, based on layout information of the shot region to be detected, and calculates the surface position based upon an output of the selected at least one electrode.

In a yet further aspect of the present invention, independent claim 53 recites a scanning exposure apparatus for transferring a pattern of a mask to a shot region in a substrate by scanning the mask and the substrate relative to a slit-shaped exposure beam. The apparatus includes a plurality of electrostatic sensors, for sensing a surface position of the shot region, each having a plurality of electrodes arranged in a direction perpendicular to a scanning direction of the mask and the substrate, and a system which selects at least one electrode from the plurality of electrodes of one of the plurality of electrostatic sensors based on layout information of the shot region to be detected, and calculates the surface position based upon an output of the selected at least one electrode.

Applicants submit that the cited art, whether taken individually or in combination, does not teach or suggest such features of the present invention, as recited in independent claims 37, 38, 43, 48 and 53.

The Examiner relies on the Wakamoto et al. publication for showing a device manufacturing method and an exposure apparatus for transferring a pattern to a shot region in a substrate with a slit-shaped exposure beam and a sensor for sensing a surface position of a shot region in the substrate. The Examiner notes, however, that the Wakamoto et al. publication does not disclose the use of an electrostatic sensor.

The Examiner relies on the Azuma et al. patent for disclosing electrostatic sensors used to measure the height of a table. Applicants submit, however, that the Azuma et al. patent does not teach or suggest sensing a surface position of a shot region in a substrate to which a pattern is transferred by an exposure apparatus in the manner of the present invention recited in the independent claims. Rather, the Azuma et al. patent merely discloses that the electrostatic sensors 23, 23', 23'' are used to detect the height of the table 21. This is discussed in the Azuma et al. patent at column 6, lines 48-50.

For the reasons noted above, Applicants submit that neither the Wakamoto et al. publication nor the Azuma et al. patent teaches or suggests that salient features of Applicants' present invention, as recited in the independent claims of utilizing an electrode to sense a surface position of a shot region in a substrate. Accordingly, Applicants submit that even if the art were combined in the manner suggested in the Office Action, that art would not teach or suggest Applicants' present invention, as recited in the independent claims.


For the foregoing reasons, Applicants submit that the present invention, as recited in independent claims 37, 38, 43, 48 and 53, is patentably defined over the cited art, whether that art is taken individually or in combination.

Dependent claims 42, 47, 52 and 57-63 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in their respective independent claims. Further individual consideration of these dependent claims is requested.

Applicants submit that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the objection and rejection set forth in the above-noted Office Action and an early Notice of Allowance are also requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steven E. Warner", is written over a horizontal line.

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